

NOTES ON THE GENUS AND SPECIES LIMITS OF

PSEUDOGYNOXYS (GREENM.) CABRERA

(SENECIONEAE, ASTERACEAE).

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The neotropical genus Pseudogynoxys was raised to generic rank by Cabrera (1950) and has been generally accepted by students of the Senecioneae since that time (Cuatrecasas, 1955; Afzelius, 1966; and Nordenstam, 1977). The genus has been sharply defined on the basis of the scandent habit, the alternate leaves, the membranaceous to subchartaceous leaf blades, the radiate heads, and the styles of the disk flowers with pointed hirsute appendages. The flowers are notably orange-colored becoming reddish with age, and some specimens have been noted as fragrant. At least two species have been cultivated and the distribution of P. chenopodioides might be partially the result of human intervention. Unfortunately, taxonomic treatments of the genus have consisted largely of transfers and synonymizations of names and descriptions of new entities without any complete survey of the diversity and limitations of all the known species. Perhaps partially for this reason a recent treatment for the Flora of Guatemala (Williams, 1976) has reduced the genus to synonymy under Senecio and has placed all the Central American species in synonymy under Senecio chenopodioides HBK. The present effort attempts to correct the primary inaccuracies and deficiencies of past studies.

The placement of Pseudogynoxys in Senecio cannot be considered truly traditional nor natural. From the time of Cassini (1827) to the time of Greenman (1902) the species were generally described under the neotropical genus Gynoxys because of the pointed tips of the styles. The placement was unsatisfactory since Gynoxys is a genus of shrubby plants with usually opposite coriaceous leaves. It was Greenman (1902) who transferred the group to Senecio and established the subgenus Pseudogynoxys. Greenman's effort did not include South American material and it included a number of confusing species names that were never validated.

Pseudogynoxys is without close relatives among the American genera of the Senecioneae and there is no obvious integration of characters. Actual relationship seems to be to the genus Gynura Cassini of the Eastern Hemisphere. A few species of Gynura possess habits similar to Pseudogynoxys and the style branches are pointed. The Old World genus is distinguished by the lack of rays in the head and by the exact shape of the style appendages which are much longer with only short hairs.

In reviewing the species of Pseudogynoxys taxonomically valid distinctions have been seen in the straightness of the stem, the pubescence, the leaf shape and venation, the position of the inflorescence, the stoutness of the pedicels, the structure of the calyculus, and the tips of the involucre bracts. Some differences in floral structure also occur, but the only ones noted in this study are the nearly glabrous ray styles and the distinctive pappus of P. cabreræ, and the anther collars of P. scabra.

A number of names have been reviewed for placement in the genus including approximately 21 that have been transferred into the genus as valid species. Only 13 species are recognized here. An additional three names described in the genus Gynoxys by Turczaninow (1851) share some described features of Pseudogynoxys. The three species were based on Jameson collections from Ecuador and isotypes have been located in the U. S. National Herbarium. The three prove to be members of the genus Senecio section Aetheolaena (Cass.) Hoffm. and are disposed as follows: Gynoxys prenanthifolia Turcz., Bull. Soc. Nat. Mosc. 24 (pt. 1): 207. 1851. Type: In Andibus Quitensibus Jameson 636; and G. auriculata Turcz. *ibid.* (pt. 2): 86. 1851. Type: In alpe Pichincha alt. 14000 ped. Jameson s.n. both prove to be Senecio patens (HBK.) DC; G. heterophylla Turcz. *ibid.* (pt. 2): 85. 1851. Type: In Andibus Quitensibus. Jameson 894-896 proves to be Senecio pindilicensis Hieron. In the latter case the Turczaninow name is older but the combination Senecio heterophyllus is preoccupied. The identity of G. prenanthifolia has already been noted by Weddell (1855-1857, p.92). The styles of the disk flowers of section Aetheolaena do not actually have pointed tips but have an apical tuft of hairs.

Pseudogynoxys (Greenm.) Cabrera, *Brittonia* 7: 54. 1950.

Senecio subg. Pseudogynoxys Greenm., *Bot. Jahrb.* 32: 23. 1902.

Plants suffrutescent, scandent. Stems coarsely striated, green or pale brownish. Leaves alternate; petioles slender, sometimes with stipuliform bases; lamina membranaceous to subchartaceous, ovate to oblong ovate, base broadly acute to cordate, margins minutely serrulate to coarsely dentate, apex acute to short-acuminate. Inflorescence terminal or axillary with one to many heads. Head campanulate to hemispherical; calyculus of ca. 10-30 distinct bracts; involucre uniseriate, with short-acute to long-attenuate tips, extreme tips densely pubescent; receptacle glabrous. Corollas glabrous, deep orange, becoming reddish or purplish with age, rays ca. 6-15; styles with 2 stigmatic lines, style tips acute, usually sparsely pubescent; disk corollas with long basal tube, throat narrowly funnelform, lobes narrowly oblong-lanceolate, median resin duct evident; anther collars with larger or thinner-walled cells below; anther thecae tapering or slightly cordate at base, thecal cells elongate with single minute nodular thickenings at upper and lower ends, few to many rows nearest connective also with minute thickenings along vertical walls; anther appendage lanceolate with narrow tip; style appendages short- to long-acute with numerous hairs often more prominent around base and at tip. Achenes cylindrical with ca. 10 ribs, hirtellous, surface slightly to strongly papillose with projecting small cells; carpodium short, incurved at lower margin, not sharply demarcated above, with many rows of small cells; pappus of 3-5 series of capillary bristles; bristles sometimes flattened, scabrous, distally 20-25 $\mu$  wide. Pollen mostly 30-35 $\mu$  in diameter.

Type species: Gynoxys cordifolia Cass.

The species of Pseudogynoxys can be distinguished by the following key. Further clarification can be obtained in the appended local keys for species of Guatemala and Ecuador.

Key to the species of Pseudogynoxys

1. With stipuliform expansions at bases of the petioles . . . . . 2
2. Leaves subrhombic-lanceolate and sharply dentate (Peru) . . . . . P. filicalyculata
2. Leaves rounded or slightly cordate at the base, margins denticulate (Colombia) . . . . . P. bogotensis

1. Without stipuliform expansions at bases of the petioles . . . . . 3
3. Heads with ten or less involucre bracts (Guat., Mex.) . . . . . P. fragans
3. Heads with more than ten involucre bracts . . . . . 4
4. Leaves essentially glabrous below on veins and on undersurface, stems and involucre nearly to completely glabrous (Mexico to Colombia, West Indies) . . . . . P. chenopodioides
4. Leaves sparsely minutely appressed puberulous to tomentose on lower surface, stems or involucre glabrous to hirtellous . . . . . 5
5. Heads mostly single or in groups of 2-3 on stout pedicels 5-20 cm long . . . . . 6
6. Bracts of calyx mostly 1.5-2.0 mm wide (Ecuador) . . . . . P. sodiroi
6. Bracts of calyx less than 1 mm wide . . . . . 7
7. Leaves trinervate from at or near base of lamina, usually cordate (Argentina, Brasil, Paraguay) . . . . . P. cabreræ
7. Leaves subpinnately veined, bases usually broadly acute to truncate (Mexico to Venezuela) . . . . . P. cummingii
5. Heads clustered, pedicels mostly less than 5 cm long, slender . . . . . 8
8. Undersurface of leaf thinly tomentose . . . . . 9
9. Inflorescence terminal on leafy stems; leaf base mostly broadly acute to rounded, margins sharply serrate (Ecuador, Peru) . . . . . P. sonchoides
9. Inflorescences on short axillary branches; leaf base cordate, margins broadly and shallowly dentate (Peru) . . . . . P. cordifolia
8. Undersurface of leaf puberulous to scabrelous . . . . . 10

10. Calyculus densely pubescent (Mexico, Cent. Amer.) . . . . . P. haenkei
10. Calyculus sparsely puberulous, hairs mostly on margins of bracts (S.Amer.) . . . . . 11
11. Stems slender and obviously deflected at nodes; leaves ovate; involucre bracts acute (Ecuador) . . . . . P. engleri
11. Stems mostly stout and straight; leaves often oblong-ovate; involucre bracts attenuate . . . . . 12
12. Leaves with erect hairs on surfaces (Ecuador, Peru) . . . . . P. scabra
12. Leaves with only minute appressed hairs (Peru) . . . . . P. poeppigii

#### Key to species in Mexico and Central America

1. Heads with ten or less involucre bracts  
P. fragans
1. Heads with more than ten involucre bracts . . . 2
2. Plants mostly glabrous; involucre bracts glabrous, calyculus sparsely pubescent; leaves usually with remote sharp teeth . . . . . P. chenopodioides
2. Plants distinctly pubescent on stems, leaves or involucre, calyculus densely pubescent; leaves usually with crowded or blunt serrations . . . 3
3. Heads single or in groups of 2-4 on stout pedicels mostly over 5 cm long; involucre bracts attenuate and often reddish at tip  
P. cummingii
3. Heads numerous in clusters, pedicels mostly less than 3 cm long, slender; involucre bracts acute or only slightly attenuate . . . . . P. haenkei

#### Key to Ecuadorian species

1. Heads single or in groups of 2-4, often 2 cm wide; pedicels usually over 5 cm long, stout; bracts of

- calyculus 1.5-2.0 mm wide . . . . . P. sodiroi
1. Heads in clusters, usually 1 cm or less broad; pedicels usually less than 5 cm long, slender; bracts of calyculus less than 1 mm wide . . . . . 2
  2. Inflorescences terminal on leafy stems or branches; leaves with 3-4 pairs of prominent secondary veins congested near base . . . . . P. sonchoides
  2. Inflorescences mostly on short axillary branches; leaves with only 1 or 2 pairs of prominent secondary veins near base . . . . . 3
  3. Stems slender and obviously deflected at nodes; leaves ovate, usually gradually narrowed to a sharply acute tip; involucre bracts acute  
P. engleri
  3. Stems stout and straight; leaves oblong-ovate, becoming short-acuminate; involucre bracts attenuate . . . . . P. scabra

The recognized species of Pseudogynoxys and their synonyms are as follows.

Pseudogynoxys bogotensis (Spreng.) Cuatr., Brittonia 8: 156. 1955.

Senecio macrophyllus HBK., Nov. Gen. & Sp. 4: 140. 1818, ed folio. Not. S. macrophyllus Bieb.

Senecio bogotensis Spreng., Syst. 3: 556. 1826.

Senecio moritzianus Klatt, Leopoldina 24: 127. 1888.

The synonymy follows that of Cuatrecasas (1955).

The species is represented in the U.S. National Herbarium by seven specimens. COLOMBIA: Cundinamarca: Fusagasugá. André s.n.; 4 kms NW of Sasaima along highway to Villeta, banks of Río Dulce. Barclay, Juajobioy & Gama 3677; Entre Sasaima y Villeta. Dugand & Jaramillo 3933; La Vega. Pérez Arbeláez & Cuatrecasas 5341; Santander: Río Suratá valley, between El Jaboncillo and Suratá. Killip & Smith 16429; Between El Roble and Tona. Killip & Smith 19419; Tolima: Ibagué to Río Coello, New Quindó trail. Hazen 9644.

Pseudogynoxys cabreræ H. Robinson & J. Cuatrecasas, sp. nov.

Plantae suffrutescentes scandentes, laxe ramosae. Caules angulato-striati sparse vel dense puberuli. Folia alternata, petiolis 1-3 cm longis base non



auriculatis; laminae herbaceae vel membranaceae ovatae vel late ovatae ca. 6.0-11.5 cm longae et ca. 3.0-7.5 cm latae base plerumque cordatae vel subcordatae fere ad basem trinervatae margine argute serratae vel grosse dentatae apice breviter acuminatae supra sparse puberulae subtus densius puberulae, nervis secundariis principalibus plerumque remotis et parallelis, basilaribus plerumque mox ramosis. Inflorescentiae in ramis foliatis terminales 1-4 capitatae, pedicellis plerumque 5-15 cm longis raro brevioribus crassis distincte minute puberulis. Capitula 15-20 mm alta et 25-30 mm lata; bractee calyculi 20-30 lineares ca. 7-10 mm longae et 1 mm latae plerumque dense puberulae; bractee involucri 25-30 uniseriatae lineari-lanceolatae 10-13 mm longae 1.0-1.5 mm latae base gibbosae non angulatae apice longe attenuatae saepe rubro-tinctae extus plerumque puberulae; receptacula plana, interstitiis non vel breviter lobuliferis. Flores radii 12-14; corollae aurantiacae deinde rubrae; tubis ca. 7 mm longis glabris, limbis oblongis vel vix obovatis ca. 15 mm longis et ca. 6.5 mm latis glabris; appendices stylorum glabrae vel subglabrae. Flores disci ca. 100; corollae aurantiacae deinde rubrae 11-14 mm longae anguste infundibulares glabrae, tubis 7-11 mm longis, faucis 1.5-1.8 mm longis, lobis lineari-lanceolatis 2.0-2.5 mm longis sub medio equilatis ca. 0.4 mm latis. Achaenia ca. 3 mm longa et ca. 0.8 mm lata plerumque 10-costata ubique minute puberula base truncata; setae pappi 80-110 longiores ca. 12 mm longae 4-5-seriatae complanatae vel percomplanatae base subintegrae superne pertenues et scabellae.

TYPE: ARGENTINA: Corrientes: Dep. Empedrado, Estancia "Las Tres Marias", Dry woodland on the bank of the Rio Parana, soil hard clay, shrub or subshrub, growing to a height of one to a couple of metres, supported by other shrubs. 6/11 1952. Pedersen 1888 (Holotype, US). PARATYPES: ARGENTINA: Chaco: Jórgensen 2019 (US); Corrientes: Dep. Mburucuyá, Estancia "Santa María", 30/8 1962. Pedersen 6506 (US); Jujuy: Dep. Ledesma, Yuto, Vinalito. 7-VII-1937. Cabrera 4049 (US); Quinda pr. Laguna de La Brea. 1/6 1901. Fries 37 (US); Salta: Dep. Oran, Rio Pescado. 16/IX/1938. Cabrera 4584 (US); Dep. Oran, Yaguani. 3-XII-1941. Maldonado 759 (US); Dep. Oran, Embarcación. Dic. 20, 1926. Venturi 5108 (US); BRASIL: São Paulo: Campinas. 20 Nov. 1938. Carvalho & Mendes 2942 (US); Campinas. Campos Novas 139 (US); Mogi-Guaçu, Fazenda Campininha. 3/II/1955. Kuhlmann 3516 (US); Along river at Usina, 9 km west of Santa Cruz do Rio Pardo. 10-12-1936. Archer 4195 (US); PARAGUAY: 10 km north of

Porto Gibaja, banks of Arr. M-boi-ci, banks of Rio Parana. Aug. 21, 1952. Beetle 2166 (US); Villarrica. Jorgensen 7501 (US); Central Paraguay, In regione lacus Ypacaray. July 1913. Hassler 11845 (US); Pilcomayo River. 1888-1890. Morong 848 (US); Morong 842 (US); N. Paraguay. IX 1892. Kuntze (US).

Both Baker (1884) and Cabrera (1950) evidently recognized the species as distinct from the Central American P. cummingii, but all the names used are based directly on the Central American type or are derived nomenclaturally from it. Grisebach (1879) first treated material of P. cabreræ as Senecio benthami Griseb., but the latter was a nom. nov. based on Gynoxys cummingii Benth. and represented a broad concept including both species. Baker (1884) attempted to use the Grisebach name in a more restricted sense which, however, excluded the typical element. Cabrera (1950) unfortunately chose to refer to his Pseudogynoxys benthami as a nom. nov. rather than as a new species and therefore it also is tied nomenclaturally to the name used by Baker rather than to the description.

The new species resembles P. cummingii and in spite of some divergence of forms the shape of the leaves on superficial examination does seem to overlap. The totally discontinuous distribution and the extremely cordate and dentate leaf-form frequent in Argentinian material does strongly indicate a separate species is involved. Pseudogynoxys cummingii does occur in South America, but only in the northern parts of Colombia and Venezuela. The most northern P. cabreræ specimens are from southern Brasil and Paraguay. Specimens of similar habit from areas between prove to be the distinctive P. bogotensis and P. sodiroi. More critical examination of P. cabreræ shows consistent differences in two significant characters, the essentially trinervate venation of the leaves, and the 80-110 setae of the pappus in 4-5 series. The pappus setae are more flattened than in other species of the genus and often are bent or broken in the distal portions. In P. cummingii the leaves have subpinnate venation, and the pappus setae are in ca. 3 series ~~3-5~~ as is conventional for the tribe. The individual setae are less flattened though occasional isolated setae may be extremely broad and flat. Even in immature material where the bases of the setae cannot be seen properly, the less flattened condition can be noticed in comparisons. The mature specimens of P. cummingii often seem to have lost most or all of the pappus while the P. cabreræ pappus seems more persistent. The individual setae do not appear less fragile but the extra



series apparently provide more resistance.

The puberulence of P. cummingii is coarser than in P. cabreræ especially on the undersurface of the leaves, but this is only obvious in direct comparison of material. The style appendages of the ray flowers of P. cabreræ are notable for the lack or near lack of hairs. A few short hairs often form a very short apical tuft. All other species of Pseudogynoxys have more hairs on the style appendages of the rays. One specimen of P. cabreræ (Hassler 11845) has more hairs on the styles of the rays which probably represents a partial failure of the normal differentiation between the style of the ray and disk flowers.

Pseudogynoxys chenopodioides (HBK.) Cabrera, Brittonia  
7: 5. 1950.

Senecio chenopodioides HBK., Nov. Gen. & Sp. 4: 140.  
1818, ed folio.

Gynoxys berlandieri DC., Prodr. 6: 326. 1837.

Gynoxys cordifolia Neaei DC., Prodr. 6: 326. 1837.

Senecio confusus Britten, J. Bot. 36: 260. 1898.

Pseudogynoxys berlandieri (DC.) Cabrera, Brittonia  
7: 56. 1950.

The species is common in Mexico, Central America and the West Indies and has been cultivated in such places as Hawaii. There are only two specimens in the U.S. National Herbarium from South America. COLOMBIA: Valle: Cali. Planta cultivada en jardines. Patiffo 599; Magdalena: Ciénaga. Romero Castañeda 1907.

Pseudogynoxys cordifolia (Cass.) Cabrera, Brittonia  
7: 54. 1950.

Gynoxys cordifolia Cass., Dict. Sci. Nat. 48: 456.  
1827. Type in Herb. Jussieu No. 8939 under  
unpublished name Senecio scandens Juss.

Senecio volubilis Hook., Bot. Misc. 2: 226. 1831.

Senecio jussieui Klatt, Ann. K.K. Naturhist.  
Hofmuseums 9: 367. 1894.

Pseudogynoxys volubilis (Hook.) Cabrera, Brittonia  
7: 56. 1950.

The synonymy follows that of Cabrera (1959). The species is endemic to the coastal ranges of Peru and ranges from Departments of Lambayeque and Cajamarca in the north to Lima in the south.

Pseudogynoxys cummingii (Benth.) H. Robinson & J. Cuatrecasas, comb. nov.

Gynoxys cummingii Benth. ex Oerst., Kjoeb. Vidensk.  
Meddel. Dansk. Naturhist. Foren. 1852: 106.  
1852.

Senecio benthami Griseb., Goett. Abhand. 24: 206. 1879.

Senecio calocephalus Hemsl., Biol. Cent. Amer., Bot. 2: 237. 18881. Not. S. calocephalus Poepp. & Endl.

Senecio hoffmannii Klatt, Leopoldina 25: 106. 1889.

Pseudogynoxys benthami Cabrera, Brittonia 7: 56. 1950.

Pseudogynoxys hoffmannii (Klatt) Cuatr., Brittonia 8: 156. 1955.

The species is widely distributed in Central America from Panama northward to southern Mexico. Only two specimens from South America are in the U.S. National Herbarium. COLOMBIA: Magdalena: In coffee grove above Manaure, alt. about 600 m. Haught 3980; VENEZUELA: Zulia: Perija, alt. 1175 m. Gines 1384.

Pseudogynoxys engleri (Hieron.) H. Robinson & J. Cuatrecasas, comb. nov.

Senecio engleri Hieron., Bot. Jahrb. 28: 644. 1901. Syn. cited, S. jussieui Klatt sensu Hieron., Bot. Jahrb. 19: 69. 1894.

Senecio almagroi Cuatr., An. Univ. Madrid 4 (fasc. 2): 238. 1935.

The species occurs at lower elevations in west-central Ecuador. Specimens in the U.S. National Herbarium are as follows. ECUADOR: Canar: Along the road to Canar, ca. 17 kms ESE of El Triunfo, elev. ca. 300 ft. King 6995; Guayas: Manglaralto, elev. 0-50 m, low semi-arid hills back from beach. Dodson & Thien 1656; Along stream 12 km north of Pedro Carbo. Alt. prob. about 150 m. Haught 3058; Terecita, Stevens, 47, 130; Los Rios: Hacienda Clementina on Rio Pita, marsh. Asplund 5425.

Pseudogynoxys filicaliculata (Cuatr.) Cuatr., Brittonia, 8: 156. 1955.

Senecio filicaliculatus Cuatr., Collect. Bot. 3: 29. 1953.

The species is apparently still known only from the type from Peru (Weberbauer 7721).

Pseudogynoxys fragans (Hook.) H. Robinson & J. Cuatrecasas, comb. nov.

Gynoxys fragans Hook., Bot. Mag. 76, t. 1511. 1850.

Senecio skinneri Hemsl., Biol. Cent. Amer., Bot. 2: 247. 1881.

The type grown at Kew was apparently originally collected by Skinner in Guatemala. The original description is accompanied by a detailed illustration.

No specimens fitting the description have been seen, but a photograph distributed by the Field Museum of plants in the Berlin Herbarium under the name Senecio convolvuloides Greenm. shows an Ehrenberg collection from Mexico that is apparently P. fragans.

Pseudogynoxys haenkei (DC.) Cabrera, Brittonia 7: 54. 1950.

Gynoxys haenkei DC., Prodr. 6: 326. 1837.

Gynoxys oerstedii Benth. ex Oerst., Kjoeb. Vidensk. Meddel. Dansk. Naturhist. Foren. 1852: 107. 1852.

Senecio kermesinus Hemsl., Biol. Cent. Amer., Bot. 2: 242. 1881.

Senecio chinotegensis Klatt, Leopoldina 24: 125. 1888.

Senecio rothschuhianus Greenm., Bot. Jahrb. 60: 370. 1926.

Pseudogynoxys oerstedii (Benth.) Cuatr., Brittonia 8: 156. 1955.

In addition to the synonyms given, the following unvalidated names of Greenman on the basis of annotated specimens seem to apply to this species: Senecio bernoullianus, S. convolvuloides, and S. trixioides all nomen, Bot. Jahrb. 32: 22. 1902.

Pseudogynoxys poeppigii (DC.) H. Robinson & J. Cuatrecasas, comb. nov.

Gynoxys poeppigii DC., Prodr. 6: 326. 1837.

Senecio sprucei Klatt, Leopoldina 24: 128. 1888.

Pseudogynoxys sprucei (Klatt) Cabrera, Brittonia 7: 56. 1950.

All specimens seen have been from the Department of San Martin in Peru. The species is obviously closely related to P. scabra, but differs primarily by the minute appressed hairs that give the leaves a glabrous appearance. The species also seems to be restricted to comparatively low elevations on the eastern slopes of the Andes, while P. scabra is from low elevations to the west of the Andes.

Pseudogynoxys scabra (Benth.) Cuatr., Brittonia 8: 156. 1955.

Gynoxys scabra Benth., Voy. Sulphur 121. 1836.

Senecio eggersii Hieron., Bot. Jahrb. 28: 645. 1901.

Pseudogynoxys eggersii (Hieron.) Cabrera, Brittonia 7: 56. 1950.

Senecio neovolubilis Cuatr., Repert. Sp. Nov. 55: 141. 1953.

Pseudogynoxys neovolubilis (Cuatr.) Cuatr., Brittonia 8: 156. 1955.

Pseudogynoxys asplundii K. Afzelius, Bot. Notis. 119: 233. 1966.

Pseudogynoxys chongonensis K. Afzelius, Bot. Notis. 119: 237. 1966.

The species is characterized by the straight main stems and the densely paniculate axillary inflorescences, a habit well illustrated in the photographs of the type specimens of Afzelius (1966). The habit is particularly distinct from that of the sympatric P. engleri with its deflected stem and less dense corymbose inflorescences. The type of Gynoxys scabra has not been seen and Bentham does not describe the stem, but other described features indicate identity with Senecio eggersii Hieron. Most anther collars that have been examined show less differentiation of the basal cells than in other species of the genus. Enlarged cells are evident in the type specimen of S. neovolubilis, however. Specimens in the U.S. National Herbarium are as follows. ECUADOR: Junction of Guayas, Cañar, Chimborazo & Bolívar: Foothills of the western cordillera near the village of Bucay; 1000-1250 ft. elev. Camp E-3964; Guayas: Road from Guayaquil to Cuevedo; km 78; elev. 100 m. Dodson & Thien 1273; Guayaquil, alt. 0-50 m. Hitchcock 19966, 20126; Between Guayaquil and Salinas; near sea level. Mexia 6767; Prope Guayaquil. Mille 218; Guayaquil, along road to Aguas Piedras. Rowlee & Mixter 1108; 8 km north of Guayaquil; dry loam of hillside, alt. 5 m. Stork, Eyerdam & Beetle 8968, 8969; Guayaquil and vicinity, elev. 0-20 m. Valverde 342; Loja: Sabiango. Townsend 885 (Holotype of Senecio neovolubilis); Manabí: Roadsides near Santa Ana, alt. 100 m. Haught 3504. PERU: Piura: Canchaque upper limits of town (several km above town, rd to Huancabamba, alt. 1350 m. Hutchison & Wright 6660.

Pseudogynoxys sodiroi (Hieron.) Cuatr., Ciencia 23: 150. 1964.

Senecio sodiroi Hieron., Bot. Jahrb. 29: 73. 1900.

Senecio viridifluminis Cuatr., Repert Sp. Nov. 55: 152. 1953.

Pseudogynoxys viridifluminis (Cuatr.) Cuatr., Brittonia 8: 157. 1955.

Pseudogynoxys guarumalensis K. Afzelius, Bot. Notis. 119: 237. 1966.

Pseudogynoxys pastazensis K. Afzelius, Bot. Notis. 119: 239. 1966.

The synonymy is emended from Cuatrecasas (1964).

The specimens seen by the authors are as follows. ECUADOR: Rio Verde, Pachano 235 (US, holotype of S. viridifluminis); Cotopaxi: Cordillera Occidental; Cordillera de Angamarca y Zumbagua, above Pilaló. H. Barclay & Juajibioy 8071 (US); Pastaza: Road 3 km E of Rio Blanco, elev. 1700 m. Dodson & Thien 2006 (US); Pastaza, 1200 m alt. Rimbach 273 (F); Pichincha: About 84 km east of Quevedo, en route to Quito, alt. 2275 m. Maguire & Maguire 44259 (US); Tungurahua: Valley of Rio Pastaza, Hacienda Rio Verde Grande, alt. 1500 m. Asplund 7838 (US, isotype of P. pastazensis); Region near hot water pool at Baños, 1750 m alt. Penland & Summers 34 (F).

Pseudogynoxys sonchoides (HBK.) Cuatr., Brittonia 8: 157. 1955

Senecio sonchoides HBK., Nov. Gen. & Sp. 4: 139. 1818, ed folio.

Gynoxys sinclairi Benth., Voy. Sulphur 120. 1836.

Senecio jamesoni Spruce ex Klatt, Leopoldina 24: 127. 1888.

Senecio sinclairi (Benth.) Hieron., Bot. Jahrb. 19: 68. 1894.

Pseudogynoxys chiribogensis K. Afzelius, Bot. Notis. 119: 235. 1966.

The synonymy is emended from that of Cuatrecasas (1955). Specimens in the U.S. National Herbarium are as follows. ECUADOR: Bolivar: Balzapamba, alt. 800 m. Haught 3311; Chimborazo: Cañon of the Rio Chanchan near Huigra; 4000-4500 ft. elev. Camp E-3049; Huigra, alt. 1200 m. Hitchcock 20348; Along the road to Riobamba, ca 11 kms NE of Bucay, elev. ca. 1600 ft. King 6957; Vicinity of Huigra, mostly on the Hacienda de Licay, Rose & Rose 22188; Südwestlich Huigra, 1200 m. Schimpff 463; Cotopaxi: Road between Pilaló and Macuchi, alt. about 2400 m. Haught 2960; El Oro: Along Rio Amarillo, upstream from Portovelo, alt. 640-760 m. Steyermark 54076; Guayas: Near Bucay, alt. about 300 m. Haught 2890; Loja: Between Loja and San Lucas, alt. 2100-2600 m. Hitchcock 21492; Sabiango, elev. 3000 ft. Townsend A.96; Manabi: Road from Chone to Pichincha; km 82, elev. 450 m. Dodson & Thien 1772; Pichincha: Road from Quito to Santo Domingo de los Colorados; km 95, elev. 1000 m. Dodson & Thien 1216; s.l. Jameson 835 PERU: Lambayeque: Km 28 E of Olmos on Marañon highway, vicinity of restaurant "El Salvador", alt. 1150 m. Hutchison & Wright 3424; Piura: Prov. Paita, Talara, Haught 68; Santa Rosa (Abajao de Canchaque), alt. 800 m. Sagástegui, Cabanillas & Dios 8288.

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Figs. 1-8. Pseudogynoxys cumingii (Benth.) H. Robinson & J. Cuatrecasas, from Haught 3980, Colombia. 1. Head, X 2. 2. Involucral bracts, X  $4\frac{1}{2}$ . 3. Ray flower, X  $4\frac{1}{2}$ . 4. Disk flower, X  $4\frac{1}{2}$ . 5. Style branches of disk flower, X 27. 6. Anther, X 18. 7. Achene, X 9. 8. Leaf, X  $\frac{4}{9}$ .



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Pseudogynoxys cabreræ  
 H. Robinson & J. Cuatrecasas  
 Holotype, United States National Herbarium  
 Photo by Victor E. Krantz, Staff Photographer,  
 National Museum of Natural History

*Pseudogynoxys cabreræ* H. Robinson & J. Cuatrecasas,  
 Holotype, United States National Herbarium. Photo by  
 Victor E. Krantz, Staff Photographer, National Museum  
 of Natural History.